DOCUMENT RESUME

ED 347 339 CE 061 574

AUTHOR Pawlowicz, Bruce; Johnson, Tom
TITLE Using Claris CAD To Develop a Floor Plan. High-Technology Training Module.
INSTITUTION Medford Area School District, WI.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE 15 Oct 89
CONTRACT V199A90151
NOTE 18p.; Developed as part of the High-Technology Training Model for Rural Based Business and Industry, Technical Colleges and Local and State Educational Agencies.
PUB TYPE Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Architectural Drafting; Behavioral Objectives; Classroom Techniques; *Computer Assisted Design; Computer Oriented Programs; *Computer Science; Computer Science Education; *Computer Software; Course Content; Grade 11; High Schools; Learning Modules; Microcomputers; Pretests Posttests; Student Evaluation; Technical Education; Test Items
IDENTIFIERS *Claris CAD

ABSTRACT

This learning module for a high school architectural drafting course introduces students to the use of Claris CAD (Computer Aided Drafting) to develop a floor plan. The six sections of the module are the following: module objectives, content outline, teaching methods, student activities, resource list, and evaluation (pretest, posttest). Student activities include information sheets and contain numerous graphics showing symbols and methods. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED347339

High-Technology Training Module

Module Title: USING CLARIS CAD TO DEVELOP A FLOOR PLAN

Unit: SIX

Course: ARCHITECTURAL DRAFTING

Grade Level (s): 11TH GRADE

Developed by: BRUCE PAWLOWICZ & TOM JOHNSON

Date: OCTOBER 15, 1989

School: MEDFORD SENIOR HIGH SCHOOL

1015 WEST BROADWAY, MEDFORD, WI 54451

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Developed as a part of the High-Technology Training Model for Rural Based Business and Industry, Technical Colleges and Local and State Educational Agencies under Grant No. V199A90151.

CE061574

BEST COPY AVAILABLE

Description

An architectural drafting course in which the student will first develop skills in traditional drawing methods, they will then be used to introduce this module to develop a floor plan using Claris CAD.

Names and school

Bruce Pawlowicz & Tom Johnson

Medford senior High, Medford Wi.

Module objective-

Given a Claris CAD system the student will be able to create a floor plan using proper commands so it conforms to exact standards that were obtained on a standard drawing.

Specific objectives/competencies The student will be able to:

1. Identify the 3 parts to a CAD system.
2. Explain the key elements of miscellaneous input devices.
3. List all of the various manipulation commands.
4. Develop, store & retrieve drawings from a disc.
5. Set up a plotter for loading the media and give the plot command.

Content outline

I. Introduction

A. Equipment

1. Input
2. Processing
3. Output

II. Tools, methods, and modifiers

A. Drawing with tools, methods, and modifiers

1. Pop up choices
2. sensitivity ranges of modifiers
3. Combining tools, methods, and modifiers

III. Dimensions

A. Creating dimensions

1. Dimensioning options
2. Dimensions window

IV. Using Claris CAD to create an assignment

A. Special Functions

1. Zooming
2. Layers
3. Double lining
4. Symbols libraries

V. Storing and retrieving

A. Drawing and retrieval process

1. Perform manipulation to create a floor plan
2. Place in storage
3. Retrieve from storage
4. Program plotter
5. Create the hard copy

Methodology:

1. Upon completion of all of the instruction on how to create a floor plan without using a CAD system, the students will be shown the Claris CAD tutorial video cassette.

2. A lecture demonstration will be used to further explain the use of the drawing commands.

3. Students will then be asked to work on the workbook lessons in pairs, using the tutorial program on the computer.

4. The instructor will assist in helping students having difficulty.

5. A written quiz will be given covering material learned from the workbook, video, and the lecture/demo.

6. An assignment will be given on creating a floor plan using the CAD system. Students will work in pairs to create a copy of the floor plan that they made earlier using manual drafting techniques.

7. The instructor will assist in helping students having difficulty.

8. The drawing produced with the CAD system will be evaluated using the same grading criteria as the manually produced drawing.

Activities:

1. Students will take notes during the lect./demo.

2. Students will view the tutorial video.

3. They will complete the workbook lesson on the computer, working in pairs.

4. They will produce a floor plan using the Claris CAD software.

Resources:

1. Claris CAD
2. Claris CAD video tutorial
3. Claris CAD workbook

   (Claris Corporation, 440 Clyde Avenue, Mountain View, California 94043)
4. VCR and Monitor
5. Macintosh II cx computor
6. Overhead transperancies

Evaluation

1. A quiz covering the lecture/demo and the tutorials.
2. Final evaluation of the floor plan.

PRE-POST TEST

1. What are the 2 methods for inputing information on a drawing ?

2. What are the 2 output pieces of hardware called ?

3. What is clicking ?

4. What is draging ?

5. Define:

   Pop up choices-

   Tools-

   Methods-

   Modifiers-

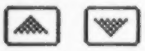
   Zooming-

   Symbols libaries-

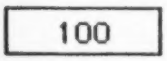
6. Describe how to store information on a disk.

7. Describe how to print a drawing that has been stored on a disk.

Tips



Click to change layers
Option-Click to select an object on another layer



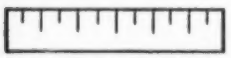
Click to switch between the last set zoom level and 100%

Click to zoom out

Click to zoom in

Click then **Drag** to surround area to be zoomed

Click to make an object transparent or empty



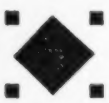
On horizontal or vertical rulers

Click to set the zero point

Click to reset the zero point

Objects

Shift-Click to select more than one object



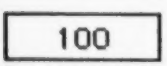
A selected object

Shift-Click to deselect the object

An angle of a polygon

Option-Double-Click to prevent the angle from being smoothed

Command-Drag to show outlines of objects while dragging



Zoom percentage box

Double-Click to Zoom in or out on a document to a specific zoom level; type a number and press Enter

Shift-Drag to draw a line at 0°, 45°, 90°, or custom angle

Shift-Drag to draw a square

Shift-Drag to draw a round-cornered square

Shift-Drag to draw a circle

Shift-Drag to draw a quarter-circle arc

Shift-Drag to draw a line segment at 0°, 45°, 90°, or a custom angle

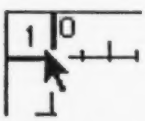
An object

Shift-Drag to constrain movement to 0°, 45°, 90°, or a custom angle

Object's handle

Shift-Drag to resize an object proportionally or in one direction only (vertical or horizontal)

Shift-Drag to rotate an object in increments of 0°, 45° , 90°, or a custom angle



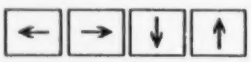
Option-Click to scroll through rulers
Option-Shift-Click to scroll through rulers in reverse order

Option-Click to scroll through pen patterns
Option-Shift-Click to scroll through pen patterns in reverse ord

Double-Click a tool or modifier to use repeatedly

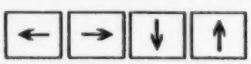
Option-Click a pattern to draw objects with patterned lines or outlines

Click in Preferences to draw polygons that close automatically



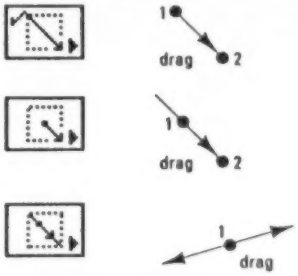
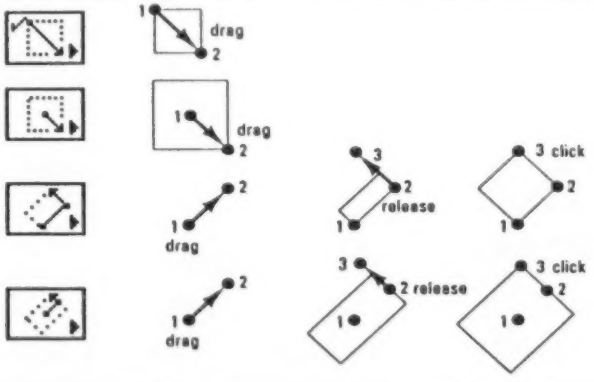
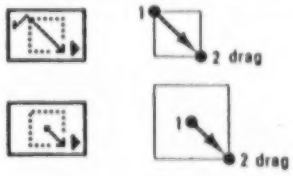
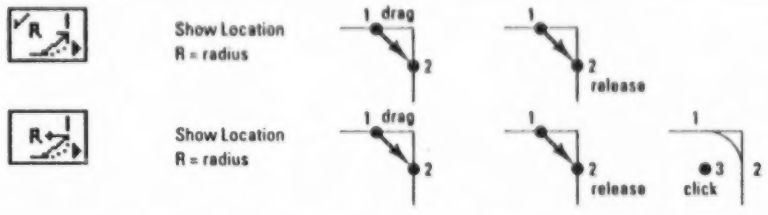
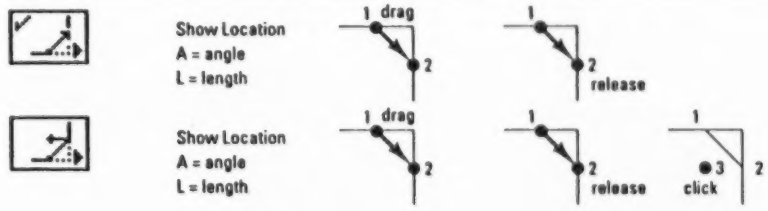
Use arrow keys with Autogrid off

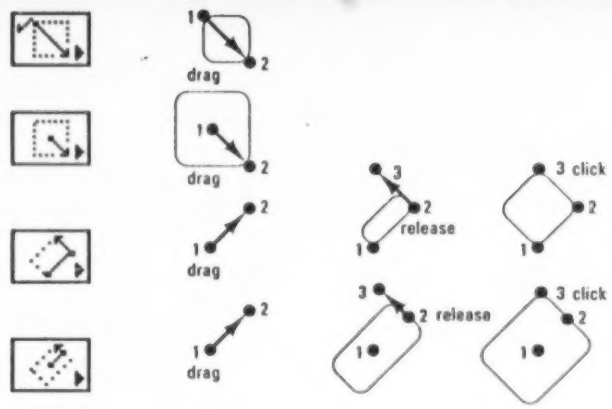
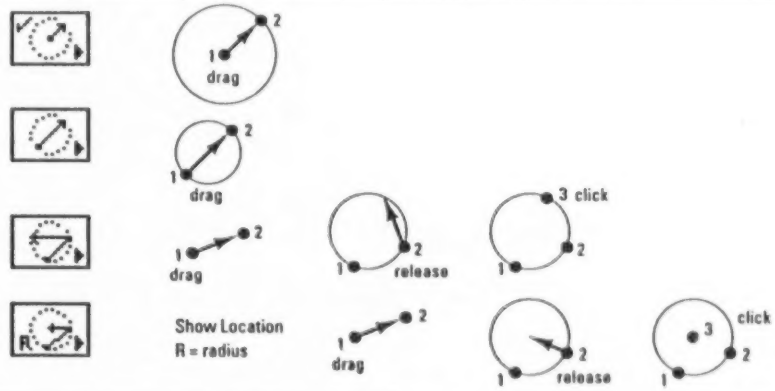
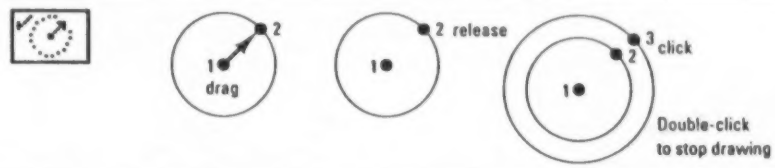
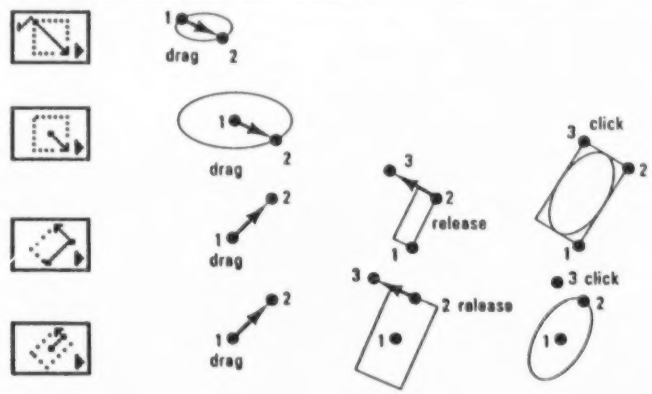
Move an object one pixel at a time



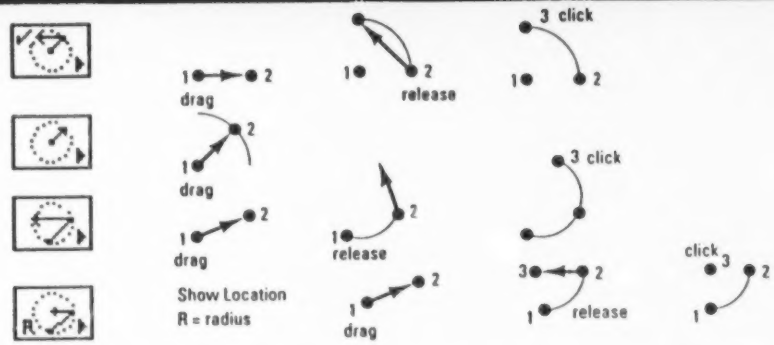
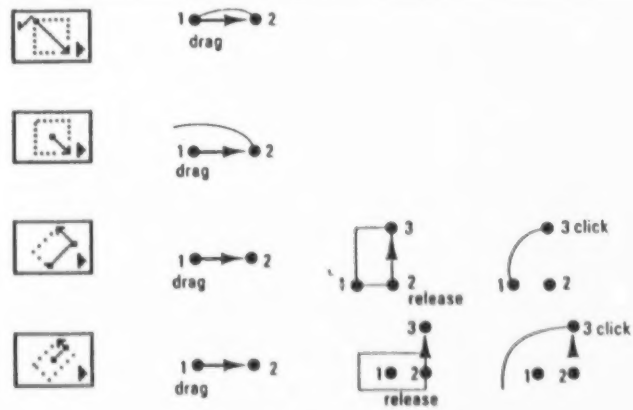
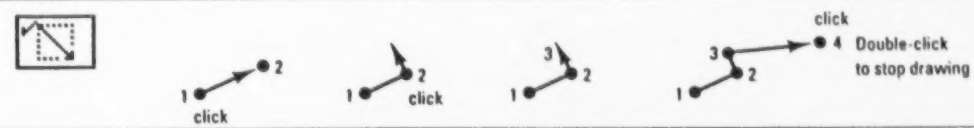
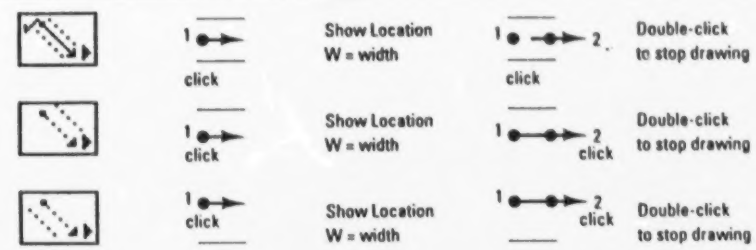
Use arrow keys with Autogrid on

Move an object one gridpoint at a time

Tool	Method
Text	Click and type text (caption text) Drag to set margins (paragraph text)
Lines	
Rectangles	
Squares	
Fillets	
Chamfers	

Tool	Method
Rounded rectangles	
Circles	
Concentric circles	
Ellipses	

Using Tools

Tool	Method
Circular arcs	
Elliptical arcs	
Freehand shapes	
Splines	
Polygons	
Double lines	

Using Tools

Tool	Method
Regular polygons	Show Location S = number of sides drag Show Location S = number of sides drag
Linear dimensions	drag drag release click (dimension text appears at point 3)
Chaining dimensions	drag release click (dimension text appears at point 3) click
Datum dimensions	drag release click (dimension text appears at point 3) click
Angular dimensions	drag release click (dimension text appears at point 3) drag release click click (dimension text appears at point 4)
Diametral dimensions	drag release (dimension text appears at point 2) or drag release (dimension text appears at point 2)
Radial dimensions	drag release (dimension text appears at point 2) or drag release (dimension text appears at point 2)
Circle center marks	click or drag (to rotate center mark)

Using Tool Modifiers

Select:	Press:	To Locate:
	N	a point with No modifier
	E	an End point on an object
	C	the Center of an object
	I	an Intersection of two objects
	J	an invisible intersection (Junction) of two converging objects

Select:	Press:	To Locate:
	U	a point Upon an object
	B	a Box corner of an object
	F	a percentage oF object's length, the amount appears in the location bar

Using Geometric Constraint Modifiers

Select:	Press:	
	P	force a line to be Perpendicular to an object
	T	force a line to be Tangent to an object
	O	create an object that is Offset (parallel or concentric) to an existing object

Using Selection Tool Modifiers

	Resize	Click or drag handle
	Trim ⇧⌘R	Click on a selected object to cut a line, circle, or arc; **or** Drag to cut a section; **or** Hold down Command and drag along a second object to specify the amount to be trimmed
	Reshape ⌘R	Drag handle to reshape Click unsmoothed freehand shape or polygon to add handle Option-Click to eliminate handles on freehand shapes and polygons

	Rotate ⌘T	Click or drag handle
	Mirror ⇧⌘R	Hold down Command, position pointer, press mouse button, position axis, release mouse button

Location Bar

Location bar

X = absolute X coordinate

Y = absolute Y coordinate

H = horizontal distance from last point

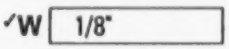
V = vertical distance from last point

A = angle from last point

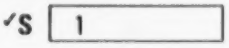
L = length from last point

Click or press Tab to select the next parameter, type in the desired amount, and press Enter to accept the settings.

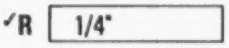
Location bar parameters that appear with tools, positional modifiers, or selection tool modifiers:



Sets width for double line tool



Sets number of sides for a polygon or the number of segments to be trimmed with the trim tool



Sets radius for circle, circular arc, and fillet

Sets the diameter for circle and concentric circle

Sets the percent for percent tool modifier

Setting Up a Document

Change document size — Layout > Drawing...

Select page size and orientation — File > Page Setup...

Show or hide rulers — Layout > Show/Hide Rulers

Show or hide page breaks — Layout > Show/Hide Page Breaks

Show or hide gridlines — Layout > Show/Hide Gridlines

Turn Autogrid on or off — Layout > Turn Autogrid On/Off

Place grid in front of objects — Layout > Preferences...

Change rulers — Layout > Rulers...

Set mouse constraint — Layout > Preferences...

Set Y axis — Layout > Preferences...

Select an arrowhead style — Pen > Arrows...

Select a dashed line style — Pen > Dashes...

Select pen sizes — Pen > Pens...

Add specific font and font size to Font menu — Font > Set Style (Choose a font, font size, and style first)

Show or hide Show Location bar — Layout > Show/Hide Location

Show or hide tool modifiers — Layout > Show/Hide Modifiers

Show or hide pattern pallete — Layout > Show/Hide Patterns

Choose a drawing standard — Layout > Drawing...

Choose dimensioning specifications — Layout > Show/Hide Dimensions

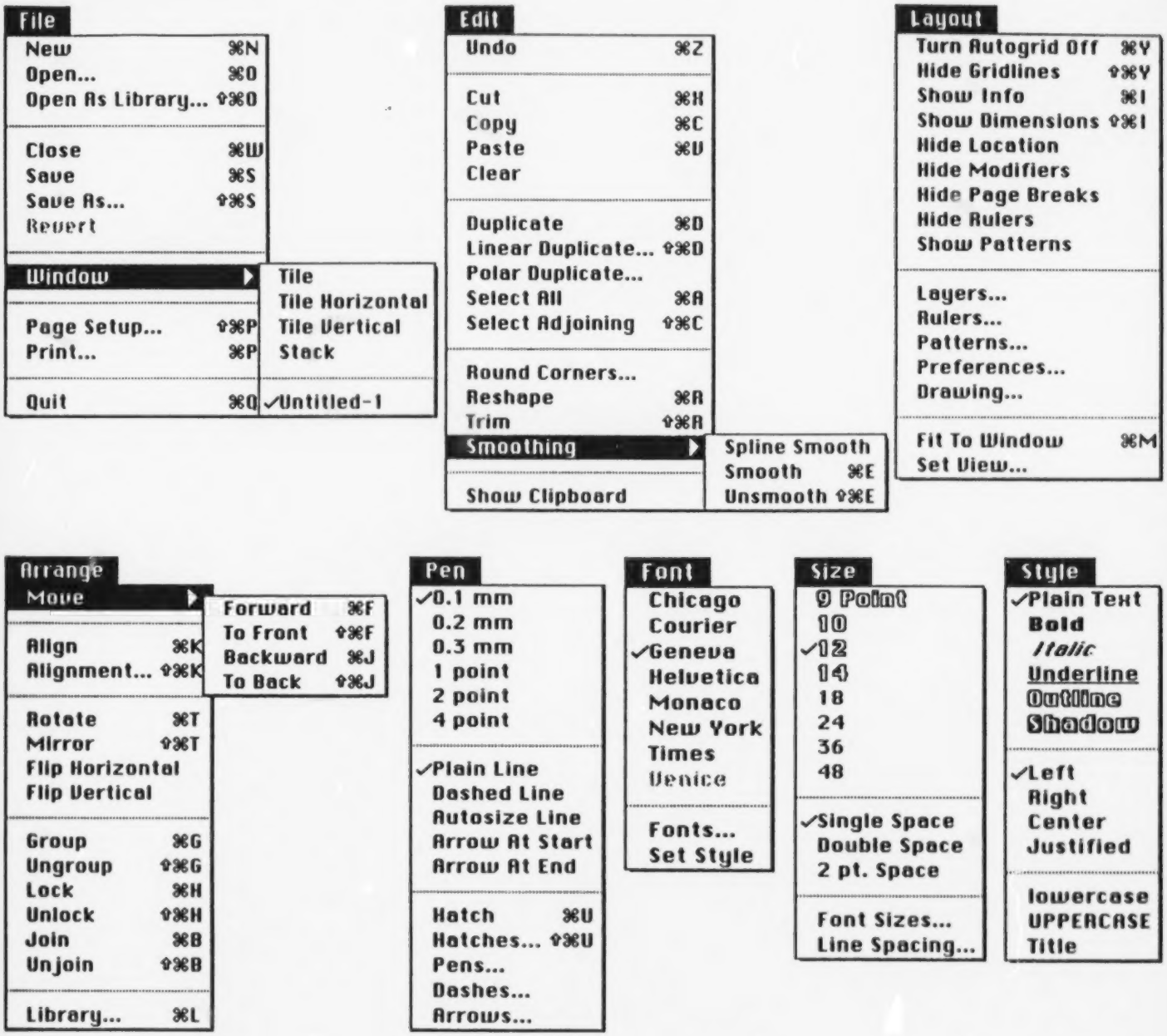
Using a Symbol Library

Add an object to a document's library	Select the object **Arrange** → **Library...**
Open a library document	**File** → **Open As Library...**
Place a library object in a document	Click library object name in the Library window **Edit** → **Copy** and Click in document **Edit** → **Paste**

Working With Layers

Work with objects on several layers	**Layout** → **Preferences...**
Create a new layer	**Layout** → **Layers...** → **New**
Activate a different layer	**Layout** → **Layers...** Double-Click **Layer Name** Or Click ▲ or ▼ (layer controls)
Display a hidden layer	**Layout** → **Layers...** Click a layer name **Show**
Hide a layer	**Layout** → **Layers...** Click a layer name **Hide**
Delete a layer	**Layout** → **Layers...** Click a layer name **Delete**
Select an object on a different layer	**Option** Click

Claris CAD Menus

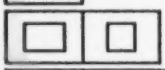


Tools With Pop-Up Choices

Selection Arrow

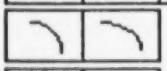
Text

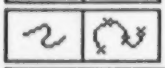
Line


Rectangle • Square

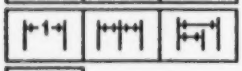
Fillet • Chamfer • Rounded rectangle

Circle • Concentric circle • Ellipse

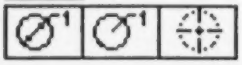

Circular arc • Elliptical arc


Freehand shape • Spline curve

Polygon • Double line • Regular polygon


Linear dimension • Chain dimension • Datum dimension

Angular dimension


Diametral dimension • Radial dimension • Circle center

Modifiers

Any point

End point

Center

Intersection

Invisible intersection

Point on

Corner

Percent

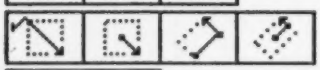
Perpendicular

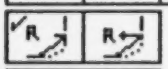
Tangent

Offset

Methods With Pop-Up Choices

End-point-to-end-point • Center-to-end-point • Construction


Corner-corner • Center-corner • Three-corner • Center-edge-corner

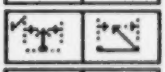

Two-point • Three-point

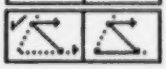
Two-point • Three-point

Center-edge • Edge-edge • Three-edges • Radius-edge-edge

Center • Lower • Upper

Center-edge • Center-vertex


Two-point • Three-point


Three-point • Four-point

Selection Tool Modifiers With Pop-Up Choices

Resize • Trim • Reshape • Rotate • Mirror